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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/803,360 Confirmation No. : 4213
First Named Inventor : Werner ZAGLER
Filed : March 12, 2001
TC/A.U. : 2612
Examiner : Julie B. Lieu

Docket No. : 080437.49628US
Customer No. : 23911

Title : Method and System for Facilitating Entry Into or Out of a
Motor Vehicle

APPEAL BRIEF

Mail Stop Appeal-Brief Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following is Appellant's Appeal Brief submitted pursuant to 37 C.F.R.
§41.37.

REAL PARTY IN INTEREST

The real party in interest is Bayerische Motoren Werke
Aktiengesellschaft, Petuelring 130, D-80788 Muenchen, Germany, as noted in an
Assignment from the inventors to Bayerische Motoren Werke Aktiengesellschaft,
dated June 11, 2001, and recorded in the U.S. Patent and Trademark Office at
Reel 011885, Frame 0162.

05/15/2006 SZEWDIE1 00000059 09803360

RELATED APPEALS AND INTERFERENCES

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The present appeal is the second appeal of this application. The earlier
appeal No. 2004-1328 resulted in a decision on appeal, a copy of which is

attached in the Related Proceedings Appendix, wherein the Board noted, in affirming the Examiner's rejection, that the originally appealed claims did not contain a negative limitation that distinguished over the cited reference.

STATUS OF CLAIMS

Claims 1-9 are pending and have been finally rejected. Appellant appeals the final rejection of claims 1-9, a copy of which are attached in the Claims Appendix.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Appellant's invention is directed to a method and system for facilitating entry into or out of a motor vehicle. Doing so is often problematic depending on the vehicle surroundings, for example, when the vehicle is parked in a narrow parking space (pg. 1, ¶ 3). With frameless vehicle doors, it is known in the prior art to completely lower the window pane to ease entry into the vehicle upon receiving a double unlock door command, for example, from a remote transmitter (pg. 1, ¶ 3). Such an operation is problematic, however, as in many instances the operator accidentally and unintentionally gives an unlock command twice. Even more detrimental, this often occurs when the operator is not in the vicinity of the vehicle, which leaves the vehicle and its contents open to theft or other vandalism (pp. 1-2, ¶ 4).

Appellant's claimed method and system facilitates entry into or out of the motor vehicle by requiring that, in addition to providing a double unlock door command. The vehicle door must also be simultaneously or subsequently opened (pg. 3, ¶ 8, Fig. 2). As soon as this occurs — and without requiring any further user action — the window of the corresponding door will be lowered completely to facilitate entry (¶ 8). Claim 1, for example, states the act of “completely lowering a window of the vehicle door as soon as both the double unlock command and the simultaneous or subsequent opening of the vehicle door occurs, without requiring any further action by a user.”

As shown in Fig. 1, Appellant's system provides a control device 12, which receives signals from a receiver 16 and door switch 14. The control device 12 operates a window actuator 10. In accordance with the invention, the control device operates the actuator to completely lower the window of the vehicle door as soon as a double unlock command has been received and, either simultaneously or subsequently, the vehicle door has been opened, without requiring any further action by a user (¶¶ 15, 19 and 21-22).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Are claims 1-9, which lower a vehicle door window as soon as a double unlock command has been received and, either simultaneously or subsequently, the vehicle door has been opened, without requiring any further action by a user, rendered obvious under 35 U.S.C. §103(a) by German Patent DE 42 03 512 C1 (“Boehm”) which does not use a double unlock command and does require further action by the user to lower the window once the door has been opened?

ARGUMENT

Subsequent to the initial appeal of this application, Appellant further amended independent claims 1, 5 and 9 to include a negative limitation of the type referenced in the initial Board decision to distinguish over the prior art in order to further clarify the operation of the claimed method, system and software product. The following points out the patentability of the pending claims.

Independent Claims 1, 5 and 9 are grouped together, along with dependent claims 2-4 and 6-8

Appellant reproduces below exemplary claim 1, in which the italicized portions are the main focus of the arguments on appeal.

1. A method of facilitating entry into or out of a motor vehicle, the method comprising the acts of:

providing a double unlock door command;

simultaneously or subsequently opening a vehicle door; and

completely lowering a window of the vehicle door as soon as both the double unlock command and the simultaneous or subsequent opening of the vehicle door occurs, without requiring any further action by a user.

The Examiner alleged that Boehm discloses a system for facilitating entry into or out of a motor vehicle that includes a control device that operates to completely lower the window of the vehicle door as soon as a double unlock command has been received and, either simultaneously or subsequently, the vehicle door has been opened, without requiring any further action by a user (see, in particular, the Final Office Action's paragraph bridging pages 2 and 3 - citing to Boehm's abstract). However, Boehm simply does not operate in this manner. Specifically, Boehm requires a further user action before lowering the window. Boehm requires that the user hold the door handle in an open state for

a set time period after opening the door. This can be seen from Boehm's Figure 2 reproduced below (English translation).

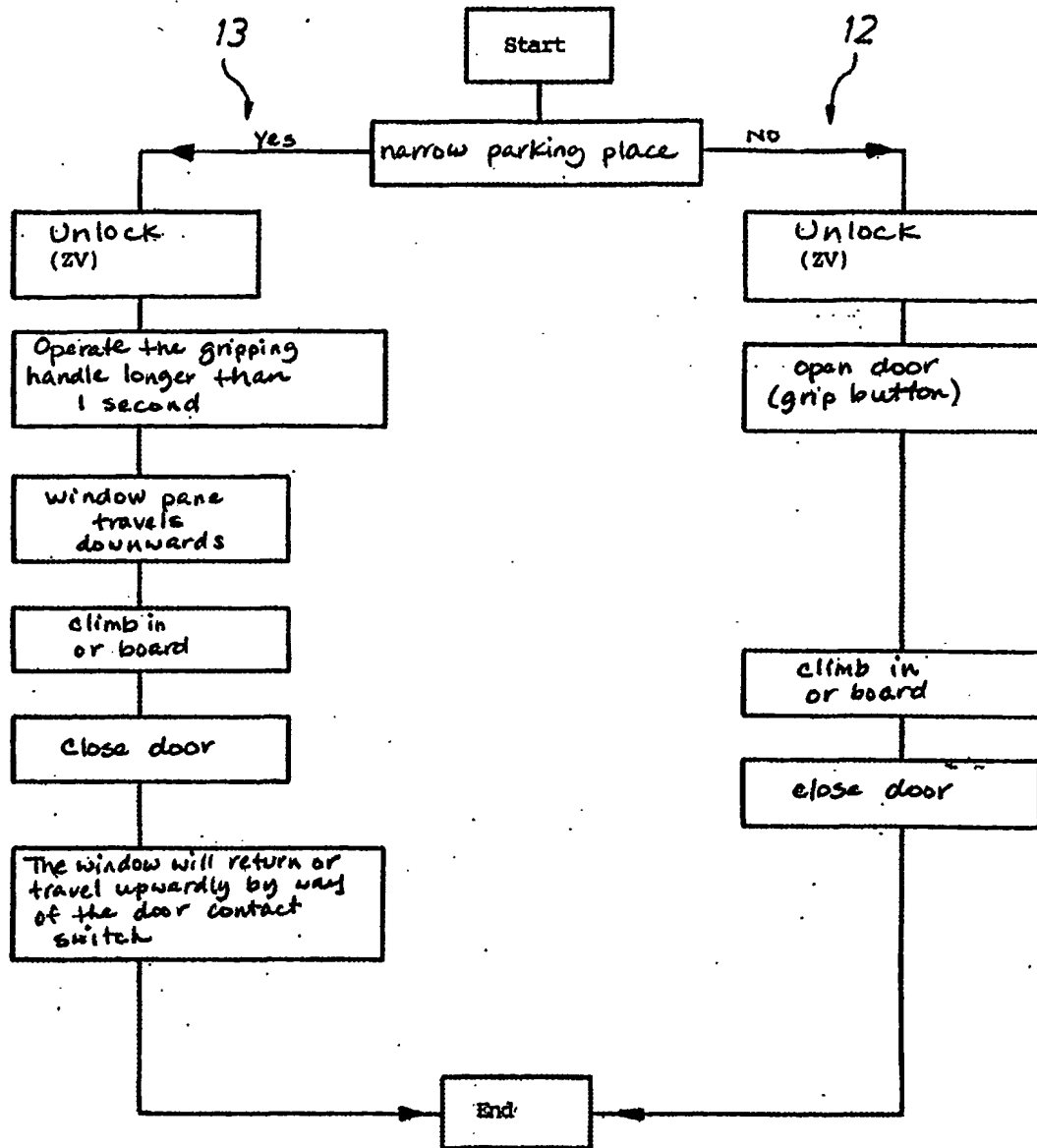


FIG.2

308 120/291

In the right-hand flow path 12 shown above, upon receipt of an unlock command (ZV) and the opening of the door, a user simply enters the vehicle

through the door. No complete lowering of the window occurs. Thus, Boehm cannot meet the limitations of Appellant's independent claims.

Moreover, in the left-hand flow path 13 of Boehm's Figure 2, not only is the unlock command (ZV) and opening of the door required, but there must also be an additional user action of holding the door handle in an open state for an additional time period, e.g. greater than one second, before the window pane is automatically lowered.

Clearly, therefore, Boehm does not lower the window "as soon as" the double unlock command and the opening of the vehicle door occurs "without requiring any further action by a user". If that were to be case, then the right-hand path 12 shown in Figure 2 of Boehm would also indicate a complete lowering of the vehicle window. But, of course, that is not the case.

Indeed, the prior Board decision concurred with Appellant's view of the operation in Boehm:

It is further explained [by Appellant] that this separate and additional action requires the user to actuate the door handle for a specified period of time. This is consistent with the teachings of [Boehm's] operation of Figure 2 at translation page 10 and as depicted by the English translation version of the Figure 2 of this reference that was attached to [Appellant's] brief. Nevertheless, there is no negative limitation in the claims that distinguishes over the operation and functionality of the reference...

(Decision on Appeal dated January 20, 2005, pg. 4, lines 13-19, the Boehm translation being attached hereto)

In responding to Appellant's arguments, the Examiner now maintains that Boehm lowers the vehicle window

“as soon as the two actions occur without requiring any further action by user. That is to say, when the door opening command is received and the door is opened the window lowered while no ‘further’ action by a user is required (after opening the door)”

(emphasis made by the Examiner, Final Office Action of January 24, 2006, pg.

5). As pointed out above, however, Boehm does not teach this operation. If it did, then the window would be completed lowered in the right-hand path of Figure 2. In the right-hand path 12, the door open command has been received and the door has been opened but the window has not been lowered.

Boehm *teaches away* from such automatic operation by essentially requiring an additional user action of holding the door handle in an open state for a non-normal time period. This essentially creates a special window lowering command. Thus, operating the gripping handle for a longer time period is a conscious act by the user to create the window lowering command. Otherwise, the window would always lower in the Boehm reference, which is certainly not a desirable feature.

CONCLUSION

In view of the foregoing, Appellant submits independent claims 1, 5 and 9 are patentable over Boehm. Further, dependent claims 2-4 and 6-8 depend therefrom and are also submitted to be patentable. It is respectfully requested that the final rejection be reversed and the application allowed.


The required appeal brief fee in the amount of \$500.00 is submitted herewith on the attached Credit Card Payment Form (PTO-2038).

If there are any questions regarding this Appeal Brief or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #080437.49628US).

Respectfully submitted,

May 12, 2006


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1. A method of facilitating entry into or out of a motor vehicle, the method comprising the acts of:

providing a double unlock door command;
simultaneously or subsequently opening a vehicle door; and
completely lowering a window of the vehicle door as soon as both the double unlock command and the simultaneous or subsequent opening of the vehicle door occurs, without requiring any further action by a user.

2. The method according to Claim 1, further comprising the act of subsequently completely closing the window of the vehicle door after the vehicle door is closed.

3. The method according to Claim 1, wherein the act of providing the double unlock command is carried out via at least one of a remote radio operation and a vehicle door command point actuation.

4. The method according to 2, wherein the act of completely closing the window of the vehicle door further comprises the act of monitoring the closing by an anti-squeeze device.

5. A system for facilitating entry into or out of a motor vehicle having at least one vehicle door, in which a window is lowerable and closeable and to which an opening/closing detecting device is assigned, the system comprising:
an unlocking device for unlocking the vehicle door;
a control device for controlling a window actuator; and

wherein the control device has inputs which receive a signal reflecting an unlock command and a signal which corresponds to a door opening or closing action, said control device operating the actuator to completely lower the window of the vehicle door as soon as a double unlock command has been received and, either simultaneously or subsequently, the vehicle door has been opened, without requiring any further action by a user.

6. The system according to Claim 5, wherein said control device operates the actuator to completely close the window of the vehicle door after the vehicle door is closed.

7. The system according to Claim 6, further comprising an anti-squeeze device which monitors the closing operating of the window.

8. The system according to Claim 5, wherein the unlocking device comprises one of a remote-controlled operable device and a vehicle door command point.

9. A software product for controlling an opening and closing of a window of a vehicle door to facilitate entry into or out of a motor vehicle, the software product comprising a computer readable medium having stored thereon program code segments that:

detect an unlock command signal;

detect an opening of a door of the motor vehicle; and

activate a complete lowering of a window of the door as soon as a double unlock command and, either simultaneously or subsequently, the opening of the vehicle door occurs, without requiring any further action by a user.

The opinion in support of the decision being entered today was
not written for publication and is not binding precedent of the Board

Paper No. 22

DS
UNITED STATES PATENT AND TRADEMARK OFFICE

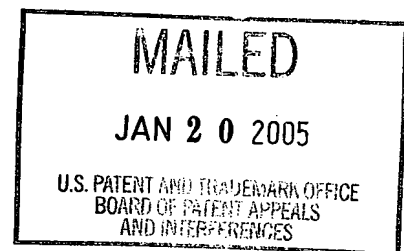
BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

49628

Ex parte WERNER ZAGLER

Appeal No. 2004-1328
Application 09/803,360

ON BRIEF¹



Before THOMAS, BARRY, and SAADAT, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's final rejection of claims

1-9. Representative claim 1 is reproduced below:

¹ The requested oral hearing set for January 11, 2005, was waived by a telephone call from appellant's representative to a Board Administrator during the time set for the hearing.

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Application No. 09/803,360

1. A method of facilitating entry into or out of a motor vehicle, the method comprising the acts of:

providing a double unlock door command;

simultaneously or subsequently opening a vehicle door; and

completely lowering a window of the vehicle door upon the occurrence of both the double unlock command and the opening of the vehicle door.

The following reference relied on by the examiner is:

Böhm et al. (Böhm)

DE 42 03 512 C1²

May 19, 1993

Claims 1-9 stand rejected under 35 U.S.C. §103. As evidence of obviousness, the examiner relies upon the German patent alone.

Rather than repeat the positions of the appellant and the examiner, reference is made to the brief and reply brief for the appellant's positions, and to the answer for the examiner's positions.

OPINION

For the reasons generally set forth by the examiner in the answer, with the exception noted below, we sustain the rejection of all claims on appeal under 35 U.S.C. § 103.

² Our understanding of this reference is based upon a translation provided by the Scientific and Technical Information Center of the Patent and Trademark Office. A copy of the translation is enclosed with this decision.

From our study of the principal brief on appeal, it appears to us that appellant presents substantially the same arguments with respect to each independent claim 1, 5 and 9 on appeal and separately argues dependent claims 4 and 7, which together have substantially the same limitation. For our purposes, we have chosen as a representative independent claim, claim 1 on appeal.

Since all independent claims on appeal have substantially the same limitations, as to independent claim 1, we point out that the second recited clause recites: "simultaneously or subsequently opening a vehicle door." The simultaneous or subsequent opening of the door is not per se recited in the concluding clause, the clause argued principally in the brief and reply brief. This last clause of representative claim 1 on appeal recites "completely lowering a window of the vehicle door upon the occurrence of both the double unlock command and the opening of the vehicle door." When properly construed with respect to the second noted clause, this last clause must be understood to recite "completely lowering a window of the vehicle door upon the occurrence of both the double unlock command and the simultaneous or subsequent opening of the vehicle door." This latter interpretation is consistent with the express recitations in independent claims 5 and 9 on appeal.

The examiner's statement of the rejection at pages 3 and 4 of the answer pertaining to the subject matter of independent claim 5 on appeal recognizes that the German patent does not teach specifically a double unlock command. The examiner

correctly explains that the reference essentially teaches a single unlock command.

From our study of this reference, the context of the overall disclosure is a setting where an actual key is used to unlock the doors but recognizes that the prior art also may use a remote triggering transmitter at a distance from the vehicle for unlocking and control purposes as discussed at the top of translation page 5. In any event, this double unlock command is not argued in the brief or reply brief and is admitted to be known in the art at specification pages 1 and 2 and the Summary of the Invention in the brief at page 2.

It is interesting to note here that the teaching of this admitted prior art is such that a complete lowering of a door window takes place by a single operation of a double unlock command alone.

The principal argument in the brief and reply brief of appellant is that the reference does not lower the vehicle window until a separate and additional action by the operator occurs after the door is opened. It is further explained at page 4 of the principal brief on appeal that this separate and additional action requires the user to actuate the door handle for a specified period of time. This is consistent with the teachings of the operation of Figure 2 at translation page 10 and as depicted by the English translation version of the Figure 2 of this reference that was attached to the brief. Nevertheless, there is no negative limitation in the claims that distinguishes over the operation and functionality of the reference to the extent of not requiring the door handle to be actuated for less than one second or any amount of time for that matter.

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There is no specified time limit in each of the independent claims 1, 5 and 9 on appeal.

The reference as relied on and explained by the examiner merely teaches more than what is required of the independent claims on appeal. Finally, the claims are open-ended by the use of the term "comprising."

With respect to the arguments at page 6 of the principal brief on appeal, we note that simultaneity is only an alternative requirement of representative claim 1 on appeal as explained earlier in this opinion. Certainly a one-second operation time requirement of operating the door handle of the reference for at least one second in time is subsequent to or substantially simultaneous within the context of the recited subject matter of the independent claims 1, 5 and 9 on appeal.

We are in substantial agreement with appellant's assertions of pages 7 and 8 of the principal brief on appeal and pages 2 and 3 of the reply brief that the examiner has essentially merely alleged in a conclusory fashion that the subject matter of claims 4 and 7 are inherent within the operation of the German patent. From our study of the translation of this reference, it does not otherwise teach any monitoring of a closing operation of a window by means of an anti-squeeze device. Therefore, this feature is not necessarily inherent within the operation of the German patent.

On the other hand, it appears in the record before us that between the publication date of May 19, 1993 of the German patent relied upon by the examiner and the effective filing date of the present German application in Germany, it became known

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in the art to utilize such monitoring devices as anti-squeeze devices during the closing operations of windows. The specification paragraph 9 at page 3 and specification paragraph 18 at page 5, both state that "an anti-squeeze device, which is known per se" was only generally mentioned by appellant in the disclosure of his own application. As noted by the examiner at the bottom of page 7 of the answer, there is no other explanation of the nature or use of this anti-squeeze device in appellant's specification as filed. In any event, based upon the timeframe difference between a publication date of the reference and the filing of the present application, we consider that it would have been obvious to the artisan to have employed such an apparently safety-type device for the user during the closing operations of the window of the vehicles that are clearly disclosed within the reference relied by the examiner. Obviously, since the anti-squeeze device was known in the art as admitted by appellant, the use of such device would have enhanced the safety operation of that system already disclosed in the German patent relied upon by the examiner.

Since no other claimed feature or claims other than those discussed in this decision have been argued in the brief and reply brief, we affirm the rejection of claims 1-9 under 35 U.S.C. §103.

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No time period for taking any subsequent action in connection with this appeal
may be extended under 37 CFR § 1.136(a)(1)(iv)(effective Sept. 13, 2003; 69 Fed.
Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat., Office 21 (Sept. 7, 2004)).

AFFIRMED



James D. Thomas
Administrative Patent Judge



Lance Leonard Barry
Administrative Patent Judge



Mahshid Saadat
Administrative Patent Judge

BOARD OF PATENT
APPEALS AND
INTERFERENCES

JDT/cam

Appeal No. 2004-1328
Application No. 09/803,360

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2004-1328
09/803,360

PTO 04-1852

German

Document No. DE 42 03 512 C1



**DEVICE FOR LOWERING AND RAISING A
WINDOWPANE IN A MOTOR VEHICLE DOOR**

[Vorrichtung zum Absenken und Anheben einer
Fensterscheibe einer Kraftfahrzeugtür]

Dipl. Ing. Günther Böhm and Dipl. Ing. Rainer Fornoff

UNITED STATES PATENT AND TRADEMARK OFFICE

Washington, D.C.

February 2004

Translated by: Schreiber Translations, Inc.

Country

: Germany

Document No.

: DE 42 03 512 C1

Document Type

: Patent

Language

: German

InventorsDipl. Ing. Günther Böhm and
Dipl. Ing. Rainer FornoffApplicant

: Audi AG

IPC: E 05 F 15/16,
E 05 B 65/36,
B 60 J 1/17Application Date

: February 7, 1992

Publication Date

: May 19, 1993

Foreign Language Title: Vorrichtung zum Absenken und
Anheben einer Fensterscheibe
einer KrattfahrzeuggestürEnglish Language Title: DEVICE FOR LOWERING AND
RAISING A WINDOWPANE IN A
MOTOR VEHICLE DOOR

/1¹

Specification

This invention relates to a device for lowering and raising a windowpane in a motor vehicle door according to the preamble of Claim 1.

A generally known device for lowering and raising a windowpane in a motor vehicle door consists of a window lifter device with an electrical drive motor and a control device, which comprises the operating switches (window lifter switch) in the vehicle passenger compartment for the functions of "lowering" and "raising." In this known device, the windowpane is shifted not with an otherwise customary crank drive but with an electric motor that can be turned on.

In conjunction with the above device, it is also generally known to provide a holding circuit that after touching the operating switch maintains the "lowering" or "raising" functions until the complete lowering or complete raising of the windowpane so that the operating switch need not be kept down throughout the entire time the windowpane is being shifted. The function that is preserved by the holding circuit can be interrupted by again operating the operating switch during the shifting motion.

¹ Numbers in the margin indicate pagination in the foreign text.

In a typically related known central closing device on a motor vehicle (DE-OS 36 30 004) as the vehicle is locked with a key and in addition to a central locking of the lock devices, all drive motors are also triggered from open windowpanes (and possibly a sliding roof) in the closing direction so that when the vehicle is locked to provide protection against theft, all window openings (and possibly the sliding roof opening) will be closed. For this purpose, the drive motors are triggered via a switch in the locking device and the latter's voltage supply is again turned off via an associated time switch after a predetermined span of time.

Furthermore, a typical device for lowering and raising a windowpane in a motor vehicle door is known (DE-PS 33 01 071) where a drive motor can be influenced both from an operating switch and additionally from a control device with a door switch and an associated time circuit in such a way that when the motor vehicle door is opened via the switching position of the door switch, the windowpane will automatically be moved into a lowered position, and after the window has been closed, it is again lifted into its upper terminal position. This automatic lowering during the opening of the door, however, takes place merely by a relatively small amount so that, as a result, the windowpane is opened merely by a crack. The idea here is to make sure that the air, which as the door is closed is

additionally forced into the passenger compartment from the outside of the vehicle, can again immediately escape through the crack of the lowered windowpane. The idea is to reduce the door closing noises.

Furthermore, the idea is to facilitate the design of a sealing body that is retained on the side of the superstructure for a frameless windowpane, which sealing body has a leg that grasps around the pane from the outside where, as a result of the lowering action, the windowpane, during the opening and closing of the door, is not engaged with the sealing body, thus ensuring the perfect opening and closing of the door.

Furthermore, a device for lowering and raising a windowpane in a motor vehicle is known (FR 20 44 191) where one also uses a drive motor and a control device and where the control device can be triggered by an operating switch in the form of a window-lifting switch in the interior of the vehicle. Furthermore, the control device is connected with the ignition key switch that so engages the circuit that the device as a whole, when the ignition key is pulled out, will be turned off for safety reasons. In order to facilitate the operation of the window-lifting device also from the outside with the ignition key pulled out, there is arranged an additional operating switch that works independently of the ignition key switch on the cheek of the door.

Another device for lowering or raising a windowpane in a motor vehicle (JP 2-2 52 877 A. in: Patents Abstracts of Japan, Sect. M, Vol. 14 (1990), No. 583 (M-1064)) comprises a control device that is triggered via an operating switch inside the vehicle and additionally from an associated central locking system. The central locking system, in turn, is remote-triggered via a separate transmitter at an interval from the vehicle. The window-lifting device can also be triggered via this remote control.

For aerodynamic reasons, the side windowpanes in modern passenger cars are also greatly arched and retracted on top toward the center of the vehicle. If a vehicle door is only slightly opened, as this is often the case in tight parking lots, then the arched pane protrudes into the car entry space and can thus constitute a hindrance when getting into and out of the car.

The object of the invention therefore is so to develop a typical device for lowering and lifting a windowpane in a motor vehicle door that one can achieve an improvement for the more comfortable entering and leaving of a car.

This problem is solved with the help of the characterizing features in Claim 1.

According to Claim 1, the control device by way of an additional switch comprises an additional handle button switch

that can be operated from an external handle button of the door lock associated with the vehicle door and which can thus be operated from the outside of the vehicle. With the help of the handle button switch, one can trigger the "lowering the windowpane function" via a time switch and a release switch that can be operated with a locking device of the vehicle door in case the locking device becomes unlocked and in case the release switch is thus operated and, furthermore, the handle button and thus also the handle button switch were operated at least by a certain waiting time that is predetermined by the time switch.

As a result, from the outside of the vehicle with the vehicle door still closed after the vehicle has been opened, the windowpane can be lowered as a result of the protracted activation of the external handle button in accordance with the predetermined waiting time. In that way, particularly in the case of frameless windowpanes according to Claim 2, one can facilitate the more comfortable entry [into the car] in tight parking slots with the door only partially opened because, after the windowpane has been lowered, the arched portion of that windowpane directed toward the inside of the vehicle, will be removed out of the car entry area.

After entering the car, the previously lowered windowpane is again lifted and closed by working the corresponding operating switch.

/2

An embodiment of the device with the features according to Claim 3 is particularly advantageous here. In this case, it suffices by operating an operating part (operating switch or handle button) merely to trigger the "lowering" or "raising" functions so that this function is then maintained by means of a holding circuit up to the complete lowering or complete raising of the windowpane. The operating part can thus - during the time the windowpane is being switched - already be let go so that no unpleasant time loss will thus result. In the known manner, the automatic shifting of the windowpane into one of its terminal positions can be interrupted during the shifting process by again operating the operating part.

According to Claim 4, the control device for the "lowering the windowpane" function can also be triggered by an internal handle button inside the vehicle in conjunction with the time switch where the internal handle button is operated for a certain waiting time. In that way, the windowpane can be lowered only by operating the internal handle button for easier exiting from the vehicle.

According to Claim 5, a time span of about 1 second proved practical with regard to the waiting time predetermined by the timed circuit. When the external or internal handle button of the vehicle door is briskly operated when the parking conditions are not tight and when the vehicle door is opened, then the

associated windowpane will not be lowered because, in that case, the vehicle door can be opened wide enough anyway for comfortably entering the car without hindrance by the windowpane. When the external or internal handle button is operated for a period longer than the waiting time of 1 second, on the other hand, there is a deliberate lowering of the windowpane that can be triggered from outside the vehicle and this time the interval of 1 second does not represent an uncomfortably long waiting time.

According to Claim 6, the device advantageously cooperates with a known central closing system. In that system, as the vehicle is locked, all locks are closed, and in addition, all drive motors of open windowpanes are triggered and the panes are closed. In that way, to ensure comfortable exiting in tight parking slots, an obstructing windowpane can be lowered from the inside even before the passenger gets out by operating the corresponding operating switch. After exiting without being hindered by the windowpane, the vehicle door is then closed and the lowered windowpane is closed via the central closing system.

A particularly advantageous development is achieved by the features according to Claim 7. After the "lowering the windowpane" function has been triggered by the external or internal handle button, the "raising the windowpane" function is automatically triggered via an associated door contact switch

the next time the vehicle door is closed. The windowpane is thus closed after the invention-based lowering for comfortable exiting and entering automatically without any further action by the driver.

According to Claim 8, the handle button switch as microswitch can be used especially for the external handle switch also by way of a multiple function: In a first function in conjunction with the closed position of the closing cylinder by operating the external handle button, one can trigger a closing cylinder heating unit in the known manner. When the closing cylinder, on the other hand, is in the open position, the invention-based windowpane lowering can be triggered (after a waiting time of 1 second).

For the sake of the invention-based development of the device when one uses a known central closing device and a closing cylinder-heating unit, there is no need for any additional expensive parts because only already present parts are used for the invention-based windowpane lowering so that the invention-based device can be implemented at a reasonable price.

The invention will now be explained more thoroughly with further details and features in a drawing and a flow chart.

Fig. 1 is a perspective side view of a vehicle body;

Fig. 2 is a flow chart illustrating the process as one gets into a motor vehicle and

Fig. 3 is a flow chart illustrating the process as one gets out of a vehicle.

Fig. 1 illustrates a vehicle body 1 with a vehicle door 2 where a frameless windowpane 4 can be lowered (arrow 5) in a door housing 3 by means of an electrical window-raising device. Windowpane 4 is retracted upward toward the vehicle center by a bulge 6.

The broken line in Fig. 1 shows the vehicle door 2 in a partially opened position (arrow 7); opening the door further is often not possible in tight parking conditions. By swinging the door housing 3, one then gets a still relatively large entry opening in accordance with interval 8. In the upper area, on the other hand, because of bulge 6 in windowpane 4, the entry opening is restricted to the small interval 9 for a preferably upright comfortable entry without any physical twisting. With the windowpane 4 lowered, one can see that the entry opening for comfortable entry is enlarged also in the upper area to the interval 8 where, furthermore, increased arm movement clearance is created.

According to the invention, using an external handle button 10 after opening vehicle door 2 and after operating the handle button (arrow 11) for a period of time more than 1 second, one can so trigger the window-lifting device that windowpane 4 will

be lowered. The procedure, illustrated in Fig. 2, thus applies to the car entry activity.

Upon approaching a parked and locked vehicle, one can recognize whether there is a tight parking slot, in other words, whether it is more comfortable to enter with the windowpane lowered or with the door wide open where bulge 6 in windowpane 4 would not represent a hindrance. In the second case, the right branch 12 of the diagram according to Fig. 2 applies where the entering procedure takes place upon the opening of vehicle door 2 (central lock ZV), the (fast) opening of the door via handle button 10 and to the entry action plus the closing of the door.

In case of tight parking conditions, on the other hand, one can comfortably enter the car in accordance with the left branch 13 of the diagram: Here again, vehicle door 2 is first of all opened up and then handle button 10 is activated for a period of time in excess of 1 second. As a result, the window-lifting device is triggered and windowpane 4 goes down. Preferably, the control is so designed that after initiating the downward movement, the latter is performed completely up to the lowered terminal position even after the handle button has been let go. After entering the vehicle, the door is closed and windowpane 4 is again automatically raised via the door contact switch. For a simpler embodiment without control via the door contact

switch, the windowpane is raised by means of the window-lifting switch located inside the vehicle. /3

Getting out of the vehicle is visibly also more comfortable in tight parking conditions when windowpane 4 is lowered. The vehicle dismounting procedure is illustrated in the diagram according to Fig. 3.

Under normal space conditions when the vehicle door 2 can be opened wide, one exits from the vehicle in the usual manner in accordance with the right branch 14 of the diagram according to Fig. 3 in that the door is opened by quickly operating the internal handle button after which the door is closed and the vehicle is locked with the key.

In tight parking slots where vehicle door 2 cannot be opened fully, on the other hand, one proceeds according to the left branch 15 in Fig. 3: First of all, by operating the internal handle button for more than 1 second, one lowers the windowpane. Then the door is opened, one gets out of the vehicle with the windowpane lowered and the door is closed again. Now vehicle door 2 is closed, and using a built-in central lock (ZV) with central closing device, the windowpane is again raised into the closed position (by activation with the door key from the outside of the vehicle). In an embodiment with a control via the door contact switch, the windowpane is automatically raised again after the door has been closed.

With the help of the object of the invention, one can thus make it easier to enter and leave vehicles in tight parking conditions, something that represents help and improvement for use of a vehicle, particularly for physically less agile and less mobile persons.

Claims

1. Device for the lowering and raising of a windowpane in a motor vehicle door consisting of the following:

a window-lifting device with a drive motor and with a control device that comprises at least one operating switch (window-lifting switch) inside the vehicle for the "lowering" and "raising" functions plus another switch with which is associated a time circuit,

characterized in

that the additional switch is an additional handle button switch that can be operated from an external handle button (10) of the door lock associated with one of the vehicle doors (2) and thus from the outside of the vehicle and

that using the handle button switch via the associated time circuit and a release switch that can be operated with a locking device of the vehicle door (2), one can trigger the "lower the windowpane" function in case the locking device becomes unlocked and thus activates the release switch and, moreover, handle button (10) and thus the handle button switch would be activated

at least during a certain waiting time predetermined by the time circuit.

2. Device according to Claim 1, characterized in that the vehicle door is made without a window frame.

3. Device according to Claim 1 or 2, characterized in that after triggering the "lowering" or "raising" function, this function is maintained by a holding circuit up to the complete lowering or complete raising of the windowpane (4) so that the operating part (operating switch or handle button 10) need not be kept activated during the entire time that windowpane (4) is being shifted and

that the particular triggered function maintained by the holding switch can be interrupted by again operating the operating part during the shifting time.

4. Device according to one of Claims 1 to 3, characterized in that the control device for the "lowering the windowpane" function can be triggered also by an internal handle button in the vehicle interior in conjunction with the time circuit when the internal handle button is activated for a certain waiting time.

5. Device according to one of Claims 1 to 4, characterized in that the waiting time predetermined by the time circuit amounts to about 1 second.

6. Device according to one of Claims 1 to 5, characterized in that on the vehicle, there is provided a central closing system by means of which as the vehicle is locked with the help of a key along with a central locking, all drive motors for open windowpanes (4) can be triggered so that those windowpanes will be raised and completely closed.

7. Device according to one of Claims 1 to 6, characterized in that after the "lowering the windowpane" function has been triggered by the external or internal handle button, the "lifting the windowpane" function is triggered automatically via an associated door contact switch the next time the vehicle door is closed.

8. Device according to one of Claims 1 to 6, characterized in that the handle button switch as a microswitch is used in a multiple function, both for a known closing cylinder heating device and for lowering the windowpanes where the separation of functions depending on the closing cylinder position is so accomplished that when the closing cylinder is in the closed position, the closing cylinder heating unit and when the closing cylinder is in the open position the windowpane lowering can be triggered.

3 pages of drawings.

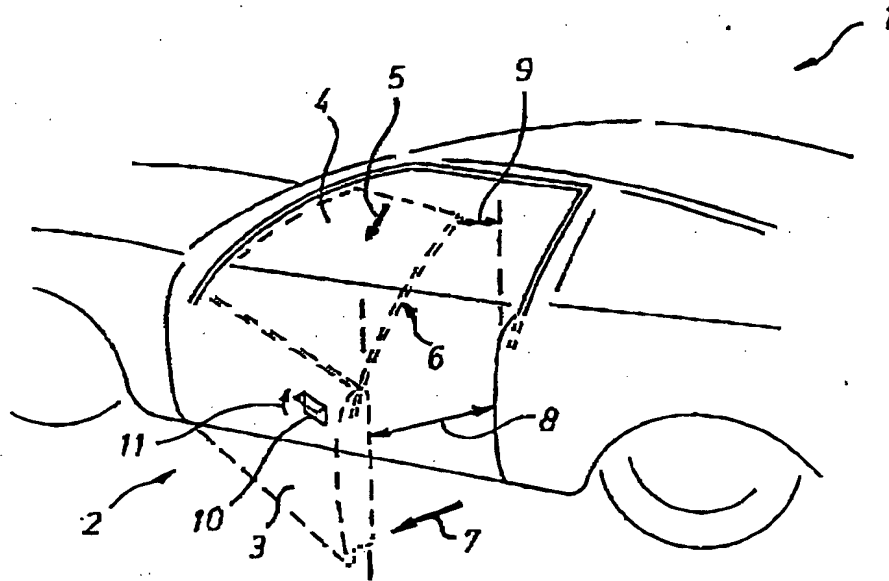
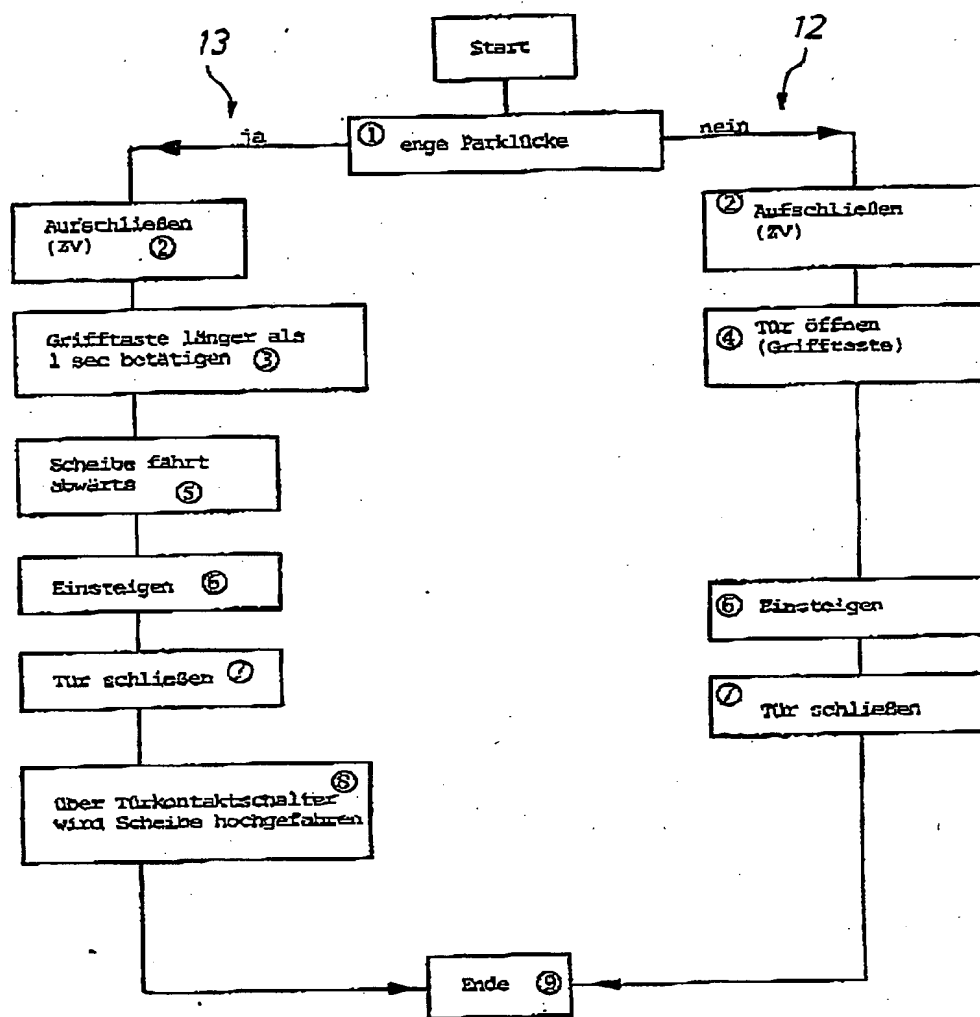
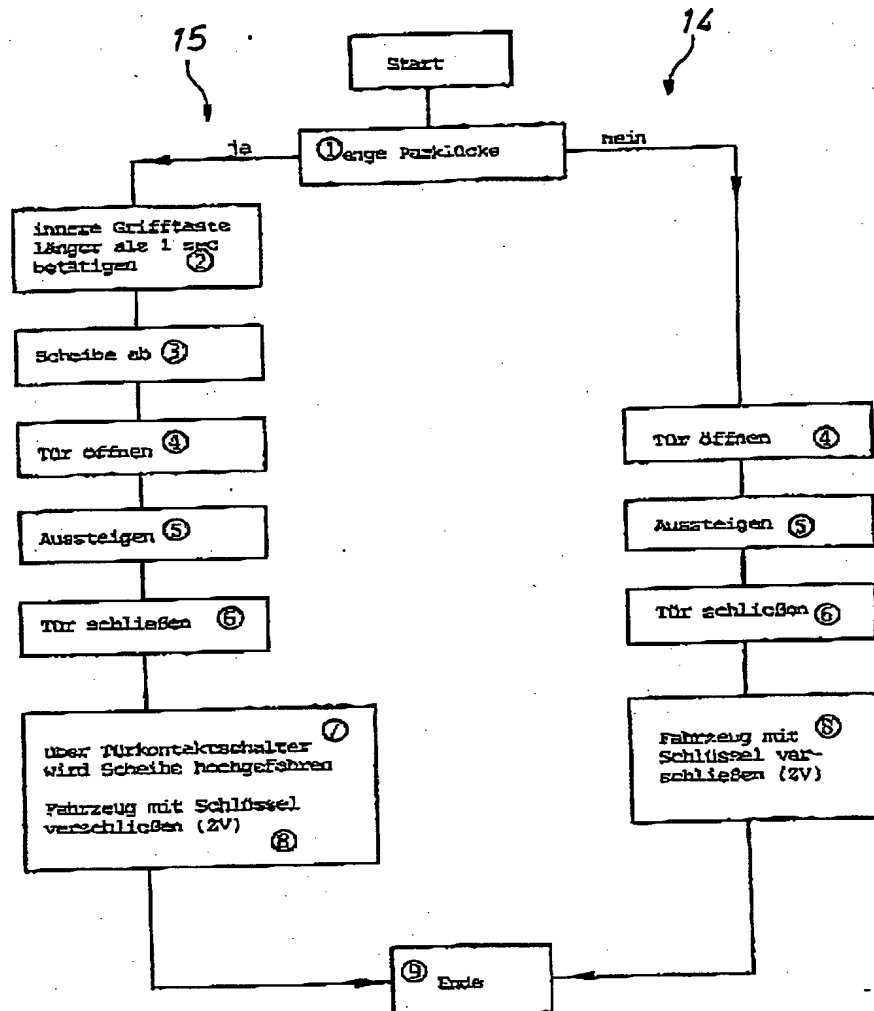


FIG.1

FIG. 2

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[Key: 1) Narrow part in slot; 2) Opening (ZV); 3) Operate handle button for more than 1 second; 4) Open door (handle button); 5) Pane goes down; 6) Entering; 7) Close door; 8) Pane is raised via door contact switch; 9) End; 12) No; 13) Yes].

FIG.3

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[Key: 1) Narrow parking slot; 2) Operate internal handle button for more than 1 second; 3) Pane down; 4) Open door; 5) Get out; 6) Close door; 7) Pane raised via door contact switch; 8) Close vehicle with key (ZV); 9) End; 14) No; 15) Yes].